

What is claimed is:

1. A resin sealing method for sealing a semiconductor chip flip-chip bonded with a substrate, the method comprising:

covering with a release film a face of an upper mold including a cavity recess portion and a resin pass communicating with the cavity recess portion;

putting the semiconductor chip with the substrate in the cavity recess portion;

clamping the semiconductor chip with the substrate by the upper mold and the lower mold;

delivering under pressure a sealing resin to a clearance between the semiconductor chip and the substrate with priority to perform under-fill molding and to form a molded component; and

separating a component gate runner connected to the under-fill portion, at the end of the substrate.

2. The resin sealing method as set forth in claim 1, further comprising:

protruding a movable block secured in the upper mold, into the cavity recess portion at both side faces of the semiconductor chip to push the release film to the semiconductor chip before performing the under-fill molding;

retreating the movable block; and

sealing both the side faces of the semiconductor chip with

resin.

3. The resin sealing method as set forth in claim 1, wherein resin is sealed so that the resin molding thickness of a portion that communicates from the substrate end of a molded component gate runner to the under-fill portion is made thinner at the pot side than that at the substrate end.

4. The resin sealing method as set forth in claim 1, wherein resin is sealed so that a V-shaped groove is formed at the substrate end position of a molded component gate runner remaining on the substrate.

5. The resin sealing method as set forth in claim 1, wherein a movable gate pin is provided at the substrate end position of the upper mold so as to protrude with respect a resin pass, and by closing the resin pass by the movable gate pin after the under-fill molding is completed, resin is sealed by pushing a sealing resin at the substrate end position back to the pot side.

6. The resin sealing method as set forth in claim 1, wherein a movable runner block is provided in the upper mold so as to protrude from the substrate end to the resin pass that communicates with the cavity recess portion, and by closing the resin pass by the movable runner block after the under-fill

molding is completed, resin is sealed by pushing the sealing resin on the substrate back to the pot side.

7. A resin sealing apparatus for sealing a clearance between a semiconductor chip and a substrate flip-chip bonded to the semiconductor chip with resin, the apparatus comprising:

a lower mold on which a semiconductor chip with the substrate is placed,

an upper mold defining a cavity recess portion for accommodating the semiconductor chip with the substrate and a resin pass communicating with the cavity recess portion; and

a release film that covers the cavity recess portion and the resin pass;

wherein a sealing resin is delivered under pressure to the clearance between the semiconductor chip and substrate with priority to perform under-fill molding; and

the semiconductor chip is sealed with resin, with a molded component gate runner to be connected to the under-fill portion remaining on the substrate.

8. The resin sealing apparatus as set forth in claim 7, further comprising a movable block at both side faces of the semiconductor chip, the movable block provided in the upper mold to protrude into the cavity recess portion,

wherein the movable block is caused to protrude in advance into the cavity recess portion, under-fill molding is performed with the release film pushed to the substrate, and both side faces of the semiconductor chip are sealed with resin after

retreating the movable block.

9. The resin sealing apparatus as set forth in claim 7, wherein the cross section of a resin pass at a portion that communicates from the substrate end of the metallic mold gate runner formed on the upper mold to the cavity recess portion is formed to be smaller than the cross section of the resin pass at a portion that communicates from the substrate end to a pot.

10. The resin sealing apparatus as set forth in claim 7, wherein the semiconductor chip is chamfered at the upper edge portion including at least respective corners.

11. The resin sealing apparatus as set forth in claim 7, further comprising a movable gate pin provided at the substrate end position of the upper mold to protrude with respect to the resin pass,

wherein the semiconductor chip is sealed with resin by pushing the sealing resin at the substrate end position back to the pot side by closing the resin pass by the movable gate pin after the under-fill molding is completed.

12. The resin sealing apparatus as set forth in claim 7, further comprising a movable runner block provided in the upper mold to protrude from the substrate end to the resin pass that

communicates with the cavity recess portion,

wherein, by closing the resin pass by the movable runner block after the under-fill molding is completed, resin is sealed by pushing the sealing resin on the substrate back to the pot side.